Fightin' Phrag

A field ecologist's notebook

By Kerrie L. Kyde


Alan Eckhart

Parkers Creek

Sometimes, no matter how carefully we plan, things don't work out quite as smoothly as we'd like. And so it was that I found myself with two colleagues, stuck at the end of a Calvert County power line right of way with malfunctioning equipment, unable to complete the work we had set out to do.

We had come to one of the most beautiful freshwater marshes on the Western Shore in Parkers Creek Natural Area to remove an invasive plant that was slowly taking over the marsh. The Area encompasses about 3,000 acres of forests and marsh. DNR and the American Chestnut Land Trust (ACLT) each own acres of land here. ACLT manages the entire property, which supports populations of nine uncommon and rare plant species.

Beaver and muskrat swim in these waters. A globally rare tiger beetle makes its home here. A network of hiking trails winds through the steep, moist forested ravines and sandy uplands of the property. ACLT leads guided paddling trips from the creek's mouth at the edge of Chesapeake Bay up into the marsh.

Late summer at Parkers Creek presents a riot of color, with pink and white hibiscus and creamy buttonbush attracting tiger swallowtails and other pollinators. Cattails and wetland sedges abound. But the native marsh plants and the animals that rely on them for food and shelter are threatened by the invasive grass *Phragmites australis*, or common reed, often just called *Phrag*. The species was introduced in the marsh about 30 years ago and slowly expanded to cover more than seven acres of its surface.

A collective effort

Most of the Phrag found along Parkers Creek is the European invader, although scientists from the Smithsonian Environmental Research Center have identified at least one patch that they believe is native (see sidebar). DNR joined forces with the Chesapeake Bay Field Office of the U.S. Fish and Wildlife Service and the Maryland Department of Agriculture, to control the invader, supported by generous grant funding from the U.S. Forest Service.

Our team included experienced driver Conor Bell from CBO, Maryland Department of Agriculture weed control staff, certified commercial pesticide applicator Yousuf Nejati of EQR, Inc., and me. We met to get started early on a September morning. The best way to reach the infestation was to drive an amphibious all-terrain vehicle (ATV) across the marsh surface (the tracks spread out the vehicle's weight, lessening any damage to the terrain) from high ground on the adjacent BGE power line right of way. With permission to use the right of way we parked our trucks and water tank and mixed the approved herbicide there.

We timed the application to avoid disrupting animals or plants. The Phrag was so dense that almost no other plants grew within the patch, so we were certain the herbicide would be applied to the invasive species and nothing else. We prefer not to use herbicides for invasive plant control if possible, but when an infestation is too big to manage by hand, carefully chosen and properly applied herbicides are an effective way to get the job done.

PHRAG FACTS

Phrag is an *invasive species* — a plant, animal, or pathogen that is non-native (or exotic) to the local eco-system, was introduced either purposefully or accidentally by people, and can cause ecological, economic or human harm.

While Phrag grows naturally all over the globe in temperate climates, there are two genetic types present in Maryland: native and introduced.

Preserved rhizomes from New England marshes show that the native variety was present on the Eastern seaboard 4,000 years ago.

It is a well-behaved and increasingly uncommon member of the freshwater marsh community.

The invasive variety is Eurasian, introduced to North America via 18th century sailing ships. Once established on the East Coast, the introduced Phrag spread west, and now occurs throughout the United States. It has largely replaced the native variety, especially in disturbed areas like rights of way and roadsides.

Common reed is allelopathic — meaning it exudes a chemical, called gallic acid, through its roots, which disintegrates a protein in adjacent plants. Without that protein, neighboring plants can't support themselves, and they die. It spreads primarily by thick rhizomes (pronounced rye-zohmz) — underground stems that extend away from the parent plant, put down roots and send up new shoots.

A dense patch of this plant blocks water flow, raising the marsh surface through its intertwined root system and fallen decaying stalks. Native wildlife frequently leaves an infested marsh due to a loss of food or suitable habitat.

A snag with the Phrag

Getting the job done on this site, however, turned out to be, well, complicated. Minutes after the ATV started down slope to the marsh, it stopped turning. Conor was able to drive only in a straight line, so navigating the marsh's twists and turns became impossible. We were stuck.

We decided to retrieve another ATV and resume work the next day. We had to drive all the way to Cambridge to borrow it. I was at the local lumber yard in the morning before the doors opened to buy the 2x6s, rope and a hitch extender we needed to outfit the second ATV. On site, we made a solid platform in the ATV bed to support the spray tank and strapped it down. We fit the pump onto the hitch extension and secured it with additional rope. Finally we were ready to spray.

Conor and Yousuf took off towards the marsh. Going over a log hidden in the grass, the vehicle bounced and got stuck. When the men got it free, they found they could no longer turn left. Another ATV that wouldn't turn!

But the spray team was determined to get the job done. They made their way across the marsh and rearranged their spray route for only right hand turns. They turned on the pump and began to spray. When they returned to mix another tank of herbicide, we discovered the problem — a fold in the thin metal tab plate that held the steering handlebars in place. Since Yousuf grew up on a farm and can fix just about anything, we used just the tools we had on hand and straightened out the kink well enough to free the right brake.

With a functional ATV and a full tank of herbicide, we were back in business! It took most of the day to do, but they covered the entire seven acres of Phrag. For the first time in the history of the Parkers Creek marsh infestation, we were fighting back.

The next steps

A follow-up visit this past May showed the project's success, but also how much more work there is to be done. Most of the seven acres of Phragmites is dead. There is some regrowth at the edge of the creek, and a huge layer of thatch — dead Phrag culms and roots — that must be removed. This is usually done through a prescribed burn. Carefully planned and executed the low-level fire burns off the dead plant material during the winter and opens the marsh surface for natives once again. We're working on the plans for that now. ■

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Leslie J. Merhoff

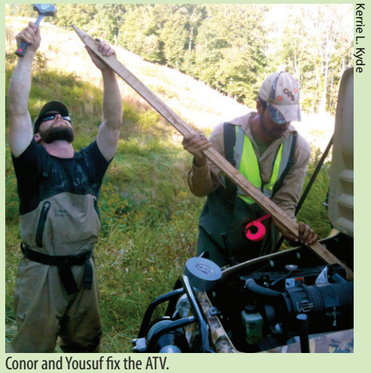
Phragmites flower head


Leslie J. Merhoff

Phragmites root showing rhizomes


Kerrie L. Kyde

Yousuf stands among *Phragmites australis* close to 12 feet tall.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Conor and Yousuf fix the ATV.


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Ready to go!


Conor Bell

Yousuf treats the Phrag with an aquatic approved herbicide.